

What is claimed is:

1. A substrate processing apparatus, comprising:

a processing chamber;

a susceptor on which a substrate to be processed is to be placed; and

a heating unit disposed below said susceptor for heating said substrate to be processed placed on said susceptor, wherein

said susceptor and said heating unit are accommodated in said processing chamber,

in a state in which said susceptor and said heating unit are relatively rotated, said substrate to be processed is processed,

at least said susceptor is lifted and lowered in said processing chamber, and

a substrate to be processed lifting and lowering apparatus for lifting and lowering said substrate to be processed with respect to at least a portion of said susceptor is disposed in said processing chamber.

2. A substrate processing apparatus as recited in claim

1, wherein

said heating unit is lifted and lowered in said processing chamber, and

said substrate to be processed lifting and lowering apparatus lifts or lowers said substrate to be processed with respect to at least the portion of said susceptor in association with lifting and lowering motion of said susceptor and said heating unit.

3. A substrate processing apparatus as recited in claim 1, wherein

when said substrate to be processed is lifted or lowered at least with respect to the portion of said susceptor, a distance between said susceptor and said heating unit is maintained constant.

4. A substrate processing apparatus as recited in claim 1, wherein said substrate to be processed lifting and lowering apparatus is disposed outside said susceptor.

5. A substrate processing apparatus as recited in claim 1, wherein said substrate to be processed lifting and lowering apparatus is disposed inside said susceptor.

6. A substrate processing apparatus as recited in claim 1, wherein

said susceptor comprises a central member and a

peripheral member, and

said substrate to be processed lifting and lowering apparatus lifts and lowers said central member of said susceptor.

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A14 7. A substrate processing apparatus as recited in claim 6, wherein

a heater of said heating unit comprises a central heater member corresponding to the central member of said susceptor and a peripheral heater member corresponding to the peripheral member of said susceptor,

outputs of said central heater member and said peripheral heater member are independently controlled, and the output of said central heater member is increased while the central member of said susceptor is lifted or lowered.

8. A substrate processing apparatus, comprising:

a susceptor disposed in a processing chamber and on which a substrate to be processed is to be placed, and

a heating unit disposed below said susceptor in said processing chamber for heating said substrate to be processed placed on said susceptor, wherein

an upper surface of a peripheral portion of said

susceptor and an upper surface of said substrate to be processed placed on said susceptor are flush with each other.

9. A substrate processing apparatus as recited in claim 8, wherein

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a member made of quartz which is flush with an upper surface of said susceptor is disposed in an outer periphery of said susceptor.

10. A substrate processing method using a substrate processing apparatus, comprising:

a processing chamber;

a susceptor on which a substrate to be processed is to be placed; and

a heating unit disposed below said susceptor for heating said substrate to be processed placed on said susceptor, wherein

said susceptor and said heating unit are accommodated in said processing chamber,

in a state in which said susceptor and said heating unit are relatively rotated, said substrate to be processed is processed,

at least said susceptor is lifted and lowered in said processing chamber, and.

a substrate to be processed lifting and lowering apparatus for lifting and lowering said substrate to be processed with respect to at least a portion of said susceptor is disposed in said processing chamber, comprising the steps of:

transferring said substrate to be processed from said susceptor to said substrate to be processed lifting and lowering apparatus when said susceptor is lowered, and

processing said substrate to be processed when said susceptor is lifted in a state in which said substrate to be processed is placed by said susceptor.

11. A substrate processing apparatus as recited in claim 10, wherein

said susceptor comprises a central member and a peripheral member,

said substrate to be processed lifting and lowering apparatus lifts and lowers said central member of said susceptor,

when said susceptor is lowered, said substrate to be processed lifting and lowering apparatus lifts said central member to place said substrate to be processed onto said central member, and

then, the lifting operation of said central member is

stopped and said substrate to be processed is transferred onto said susceptor including said peripheral member, and

when said susceptor is lifted, said substrate to be processed is processed in a state in which said substrate to be processed is placed by said susceptor.

12. A substrate processing apparatus as recited in claim 11, wherein

a heater of said heating unit comprises a central heater member corresponding to the central member of said susceptor and a peripheral heater member corresponding to a peripheral member of said susceptor,

outputs of said central heater member and said peripheral heater member are independently controlled,

the output of said central heater member is increased while the central member of said susceptor is lifted or lowered,

at the time of lowering operation of said susceptor, when said substrate to be processed lifting and lowering apparatus lifts said central member to place said substrate to be processed onto said central member, the output of said central member is increased, and

at the time of lifting operation of said susceptor, when said substrate to be processed is processed in a state in which

said substrate to be processed is placed by said susceptor including said peripheral member, the output of said central heater member and the output of said peripheral heater member are controlled such that a temperature distribution of said substrate to be processed becomes uniform over the entire said substrate to be processed. A

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